Today's Treatment

Diseases of the Skin

Acne Vulgaris

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British Medical Journal, 1973, 4, 667–669

Acne vulgaris is a common problem affecting most adolescents. Fortunately in many of them it is so mild that no treatment is necessary. Nevertheless, in those with acne severe enough to warrant medical treatment it is vital to reassure the patient that a doctor can help: all too often patients are told somewhat unsympathetically not to worry unduly since they will grow out of the spots. It is also important to stress to the patient that the treatment (whether topical or systemic) will not act in a few days but that it will begin to have an effect only after a month.

The treatment of acne is best understood from a knowledge of its pathogenesis. Four factors are important in the aetiology: the sebum excretion rate; sebaceous lipid composition; bacteriology of the pilosebaceous duct; and obstruction of the pilosebaceous duct. Undoubtedly, the sebaceous glands are under endocrine control. Patients with acne have large sebaceous glands and produce more sebum than patients without acne, probably because these have an enhanced response to circulating androgens.

The sebaceous gland contains mainly squalene, wax esters, and triglycerides. As the sebum passes up the pilosebaceous duct the bacterial enzymes (particularly the lipases) convert the triglycerides to free fatty acids. Thus the lipids which read the surface of the skin contain not only squalene, wax esters, and triglycerides but also free fatty acids. Some workers have found that the surface lipids in patients with acne contain an increased content of squalene and wax esters. Moreover, both squalene and some free fatty acids are known to potentiate obstruction of the pilosebaceous duct.

The pilosebaceous duct contains concentric lamellae of keratin and obstruction of the pilosebaceous duct—which is one of the earliest features of acne—is due to an increase in the amount and rate of formation of this keratin. The obstruction may also be aggravated by physiological changes in the keratin, such as hydration; this may occur premenstrually and so account for the well-known premenstrual flare of acne. Once a pilosebaceous duct is obstructed the gland continues to secrete sebum. The bacteria in the duct, especially *Corynebacterium acnes* and *Staphylococcus albus*, pour out their lipases, and so behind the obstruction now lies an enlarged sebaceous gland containing many free fatty acids. Eventually the gland ruptures liberating the irritant sebum into the dermis.

Evidence suggests that the free fatty acids are the most irritant components of the sebum. Thus the logical approach to the management of acne involves methods which will: reduce the sebum excretion rate; influence sebaceous gland biochemical composition; reduce the microbiological flora of the pilosebaceous duct; reduce the pilosebaceous duct obstruction.

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Reduction of Sebum Excretion Rate

Unfortunately there is no satisfactory way of reducing sebum excretion rate. Oestrogens reduce the androgen effect but need to be given in large doses and are thus not indicated as a routine because of their well-known complications. Nevertheless, in severe cases not responding to more conventional treatment with oral antibiotics the maxi pill such as Orthonovin may be of some help.

Modification of Sebaceous Gland Biochemical Composition

There is no known practical way of favourably modifying the sebum composition within the sebaceous gland. Thus the management of acne depends on an attempt to modify the situation within the pilosebaceous duct and on the surface of the skin.

Modification of the Bacteriological Flora

C. acnes and *Staph. albus* are responsible for forming free fatty acids from the triglycerides, which then cause the development of pilosebaceous duct obstruction with subsequent inflammation. Thus the aim of many topical and oral treatments is to modify favourably the bacterial flora.

TOPICAL ANTIMICROBIAL TREATMENT

Though sulphur has been used for many years in the treatment of acne vulgaris, its preparations have only limited value, and may produce local erythema and scaling besides being not very acceptable cosmetically. Furthermore, sulphur itself may cause comedones and eventually aggravate the condition. Other widely prescribed topical antimicrobials which are of some help, particularly in the milder forms of acne, are neomycin (Neomedrone) benzoyl peroxide (Benoxyl Plain, Quinoderm), and chloramphenicol (Actinac).

Topical washes and lotions which contain hexachlorophane such as Phisohex, and Clearasil Cleansing Lotion will reduce the *C. acnes* and *Staph. albus* in vitro. Hexachlorophane also has some effect in vivo against the bacterial flora. Doubt has been expressed about the safety of hexachlorophane and, though it can still be prescribed, it is now no longer easily

available over the chemist's counter. Thus these topical washes are being reformulated containing alternative antimicrobial agents such as 1-2% irgason, cetrimide, and fentichlor. One of the problems of topical washes or lotions is that some contain organic solvents or detergents and if used too often may produce excess scaling of the face and hands. This can usually be overcome by the patient using the preparations only once or twice per day.

ORAL ANTIBIOTICS

Most patients with moderate acne vulgaris and certainly those with the severe disease should be treated with long-term oral antibiotics, the initial choice being tetracycline. The absorption of tetracyline is affected by food and it is therefore important to stress to the patients that the tablet must be taken half an hour before a meal. Also, since calcium forms a poorly absorbed calcium complex with tetracycline, the tablets should not be taken with milk. The tetracycline tablet should be taken twice a day for three months in patients with moderately severe acne and for six months or even longer in severe cases. Once the acne is under control the patient should be weaned off therapy over the next six to eight weeks. Repeated courses —say, for two months each year—may be necessary and in severe cases the therapy may have to be continued for one or two years. Though the microbiological flora of the gut and nasal mucous membranes changes, and antibiotic-resistant staphylococci may emerge, side effects are extremely rare. Mild disturbances of the gastrointestinal tract are common during the first few weeks of treatment and the occasional rash due to tetracycline inevitably develops.

Some patients do not do well on tetracycline, often owing to poor absorption, and alternative treatments are available. Clindamycin is the second drug of choice and it is also probably more effective for patients with severe acne. Clindamycin should also be taken twice daily, but the tablets may be taken with meals since absorption is unaffected by food. Trimethoprim-sulphamethoxazole (Bactrin and Septrin) and erythromycin are other alternatives and may be given in the same doses as tetracyline.

All antibiotics probably act in the same way. Tetracycline and clindamycin certainly act in two ways: not only do they reduce the number of bacteria—in particular, *C. acnes* but they also chemically inhibit the extracellular lipases which cause so much damage.

Modification of Pilosebaceous Duct Obstruction

ANTIMICROBIAL TREATMENT

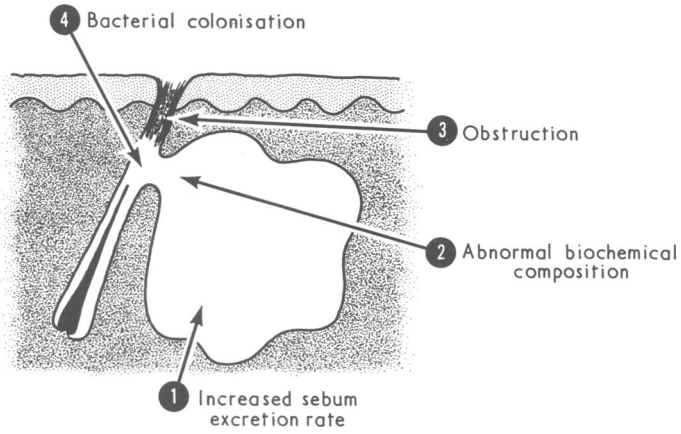
Oral (and to a lesser extent topical) antimicrobial treatment helps to alter the obstruction of the pilosebaceous duct by reducing the concentration of free fatty acids. In this way the stimulus to keratin formation is lessened.

SALICYLIC ACID

Though for many years salicyclic acid has been regarded as a keratolytic, there is little evidence for this, and neither it nor resorcin (which has some antimicrobial action) have a proved place in the treatment.

RETINOIC ACID

Retin A has a proved place in the treatment of blackheads and whiteheads. The mechanism of action is paradoxical. It increases the rate at which the keratin in the pilosebaceous duct



is formed, but this newly formed keratin is more loosely attached so that blackheads are more easily detached. In the early days of treatment the occasional inflammatory lesion develops, especially in fair-haired people. The application will produce local inflammation, and treatment is needed only so long as there are blackheads. Nevertheless, these tend to recur once treatment stops.

ABRASIVE AGENTS

Another popular therapy is the use of abrasive agents, such as Brasivol. These supposedly help in the rate of removal of keratin from the pilosebaceous duct but there is limited evidence about their efficiency.

BLACKHEAD REMOVER

Many patients with acne have blackheads and patients (or parents) tend to try to remove them. An unsuccessful attempt to remove a blackhead often means that the irritant sebum is squeezed even further into the dermis and a nasty nodule or pustule develops. Nevertheless, the successful removal of the blackhead with a blackhead remover (easily available from larger chemists)—carried out especially when the face has been washed with warm water—is of great help.

Other Types of Treatment

X-RAYS

Deep *x*-ray treatment is no longer indicated because of its long-term neoplastic effects. Superficial *x*-rays and Grenz rays are of marginal and temporary benefit; their precise mechanism of action is unknown.

ULTRAVIOLET LIGHT

For many years it has been known that natural ultraviolet light (U.V.L.) will help acne. Though artificial U.V.L. has a narrower wave length, it does have some benefit on acne, and undoubtedly acts as a useful cosmetic camouflage, as well as reducing the number of surface bacteria. Nevertheless, like many other treatments, it is only of temporary benefit. Unfortunately we do not know which is the best way of giving artificial U.V.L. A six-week course of treatment three times a week, 3 ft. (1 m.) from a Hanovia lamp is one which gives reasonable results.

ASPIRATION OF CYSTS

Acne cysts are uncommon but last for several weeks or months. Resolution can be hastened by aspiration followed by the infiltration of 0·02 ml triamcinolone.

General Measures

Current evidence suggests that dietary restriction is of no help, nor is there any convincing proof that stress is a major factor in acne. Not surprisingly patients do get depressed about their spots and the judicous use of tranquillizers or antidepressants will then be indicated.

There is only one possible indication for the use of topical corticosteroids in acne—namely, to reduce the considerable inflammation in a patient who has to attend an important social event within the next few days. For example, Betnovate cream combined with neomycin applied four times a day, preferably after the face has been washed well with warm water, can reduce the redness considerably.

Patients with acne have greasy skins and so ointments are not well tolerated. Consequently, many preparations for the treatment of acne are in a form of a lotion, wash, or paste; these attempt, usually unsuccessfully, to dry the skin. Creams are also an acceptable way of topical application. Pastes are cosmetically unacceptable and can be applied only at night—whereas washes, creams, and lotions can be used three times a day. Cosmetics with a greasy base will exaggerate the clinical appearance. If a doctor is in doubt about which cosmetic a patient should use then some of the larger cosmetic firms usually give good advice.

Some topical preparations available for the skin and some hair preparations contain agents which might in themselves produce comedones. The persistence of blackheads, especially around the hair line, should alert the physician to this possibility. Oral steroids may produce an obstructive type of acne such as is also seen in Cushing's syndrome. The symptoms improve when the systemic steroids are stopped. Should steroids need to be continued then the therapy of the acne will follow the general principles.

Dermabrasion

Severe scarring is an uncommon complication of acne. Dermabrasion should be done only in a patient whose acne has regressed spontaneously or in one over 20 years whose acne is well controlled. Dermabrasion is usually carried out by a plastic surgeon and an uncommon complication is postoperative pigmentation. The decision to operate must not be made too soon because it is remarkable how often the appearance of the scars may spontaneously improve over six to twelve months.

Summary

Patients with mild acne are usually reasonably satisfied with local treatment. If blackheads and whiteheads are one of the most important features then it is important to use a treatment acting against the obstructive problem. If papules, pustules, and nodules predominate then a local antimicrobial is indicated. In patients with moderate or severe acne treatment should begin with a course of antibiotics, as indicated. After some two to three months topical therapy should be added to their regimen, the choice again depending on the morphologically predominant type of lesion. The patient should then continue on the topical preparation until this is no longer necessary.

Thus much can be done to help these patients by combining a reassuring approach and attempting to influence the various pathogenetic features of acne.

Any Questions?

We publish below a selection of questions and answers of general interest

Infantile Autism

What is the sex-specific incidence of (a) infantile autism; (b) disorders of speech and reading; and (c) psychosis in the brothers and sisters of children with infantile autism?

There is a marked preponderance of males who suffer from infantile autism—Creak and Ini[1] found 3·6 boys to one girl in a series of 121 children while Annell[2] found 4·5 boys to one girl in a series of 115 children. Minski and Shepperd[3] in a series of 89 children found that the proportion of boys to girls suffering from autism was almost four to one. There is no apparent explanation for this but it is similar to the preponderance of males to females suffering from other forms of mental handicap such as subnormality.

Almost 70% of autistic children have no speech, while in a number of cases the speech is echolalic. For instance, a reply to a question consists in the repetition of the question and most of the speech is meaningless. Again autistic children often refer to themselves as "you" or use the third person when referring to themselves. In some cases of autism speech appears to have developed normally and then following either some physical or mental trauma has completely disappeared. In the untreated cases reading does not exist but where the child is in a unit where he is receiving "therapeutic education" reading develops, and both speech and reading can often be helped by reward and punishment. For example, if the child wants a sweet he is not given one until he repeats "sweet" or "please" or some other appropriate word. Many of the children can be helped by operant conditioning, which is used to establish a vocabulary. Subsequently the children may be able to construct sentences and achieve elementary reading.

Psychosis in the siblings of autistic children is not common, though occasionally more than one member of the family suffers from the illness. It is not uncommon, however, for other children in the family to have emotional difficulties due to the disruptive effect of the autistic child on the family background. Unfortunately, both special educational and hospital units for autistic children are sadly lacking and many children are sent to training schools for subnormals or subnormality hospitals if they require residential treatment.

[1] Creak, M., and Ini, S., *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 1960, 1, 156.
[2] Annell, A. L., *Acta Psychiatrica Scandinavica*, 1963, 39, 235.
[3] Minski, L., and Shepperd, M. J., *Non-Communicating Children*, London, Butterworth, 1970.